



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,167	09/08/2003	Douglas J. McKnight	006.0054D1	5688
23640	7590	08/13/2004	EXAMINER	
BAKER BOTTS, LLP 910 LOUISIANA HOUSTON, TX 77002-4995			CHOWDHURY, TARIFUR RASHID	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 08/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/658,167	MCKNIGHT, DOUGLAS J.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Tarifur R Chowdhury	2871	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 July 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9, 13-19 and 25-31 is/are pending in the application.
- 4a) Of the above claim(s) 25-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 13-19 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claims 25-31 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 07/21/04.

### ***Specification***

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

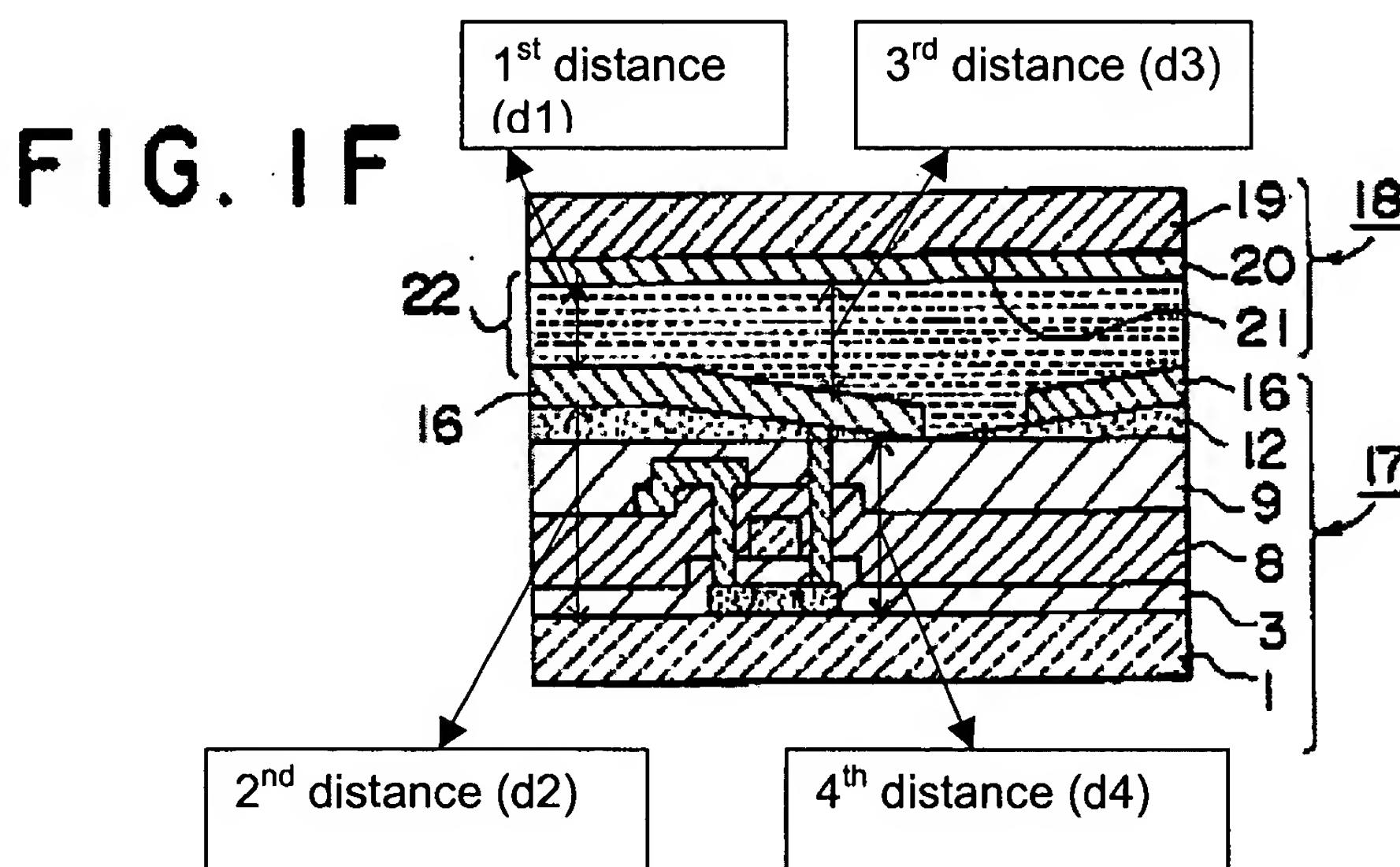
3. **Claims 1-3, 7 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura et al., (Nakamura), USPAT 6,433,848.**

4. Nakamura discloses (col. 6, lines 54-66) and shows in Fig. 1F, a display system comprising:

- an electro-optic layer;
- a first electrode (20) operatively coupled to the electro-optic layer, the first

electrode having substantially flat surface;

- a first substrate (1) having a plurality of pixel electrodes (16) for receiving a plurality of pixel data values which represent an image to be displayed, wherein for each of the pixel electrodes, a first pixel electrode surface has a first distance (d1) relative to the first electrode (20) and a second distance (d2) relative to a surface of the first substrate (1) and a second pixel electrode surface has a third distance (d3) relative to the first electrode (20) and fourth distance (d4) relative to the surface of the first substrate (1), and wherein the first distance (d1) does not equal to the third distance (d3) and the second distance (d2) does not equal the fourth distance (d4) and wherein the first pixel electrode surface and the second pixel electrode surface are substantially flat (see the reproduced Fig. 1F below).



Accordingly, claim 1 is anticipated.

As to claim 2, Nakamura discloses that the first electrode is a common counter electrode and the electro-optic layer comprises a liquid crystal material which is disposed between the first electrode and the first substrate.

As to claim 3, it is clear from Fig. 1F of Nakamura that the first substrate (1) is planar and has a first surface on which the plurality of pixel electrodes (16) are disposed and the surface is opposite the first electrode (20).

As to claim 7, it is clear from Fig. 1F of Nakamura that a first surface area of the first pixel electrode surface and a second electrode surface area of the second pixel electrode surface are substantially same.

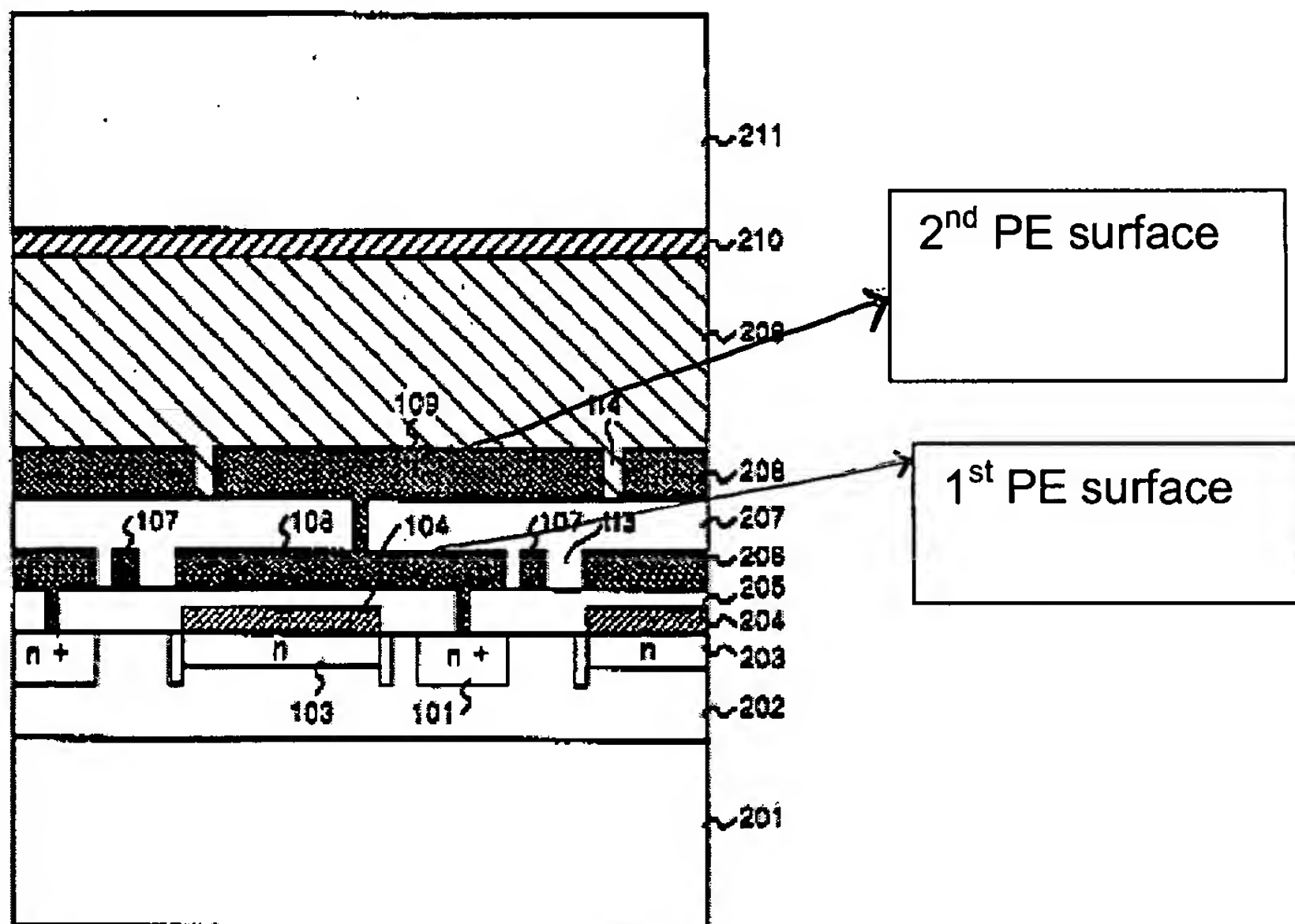
As to claim 8, Nakamura discloses that the pixel electrodes are made of metal with a higher reflectivity.

**5. Claims 1-3, 7, 8, 13 and 15-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Sato et al., (Sato), USPAT 5,461,501.**

6. Sato discloses (col. 7, lines 13-14; col. 8, lines 15-17; col. 9, lines 31-32) and shows in Fig 7, a display system comprising:

- an electro-optic layer (209);
- a first electrode (210) (common counter electrode) operatively coupled to the electro-optic layer, the first electrode having substantially flat surface;
- a first substrate (201) having a plurality of pixel electrodes for receiving a plurality of pixel data values which represent an image to be displayed, wherein for each of the pixel electrodes, a first pixel electrode surface (108) has a first

distance relative to the first electrode (210) and a second distance relative to a surface of the first substrate (201) and a second pixel electrode surface (109) has a third distance relative to the first electrode and fourth distance relative to the surface of the first substrate (201), and wherein the first distance does not equal to the third distance and the second distance does not equal the fourth distance and wherein the first pixel electrode surface (108) and the second pixel electrode surface (109) are substantially flat and substantially parallel to the first surface of the first electrode (210).



Accordingly, claims 1, 2, 13 and 15 are anticipated.

As to claim 3, it is clear from Fig. 7 of Sato that the first substrate (201) is planar and has a first surface on which the plurality of pixel electrodes are disposed and the surface is opposite the first electrode (210).

As to claims 7 and 16, it is also clear from Fig. 7 that a first surface area of the first pixel electrode surface and a second surface area of the second pixel electrode surface are substantially the same.

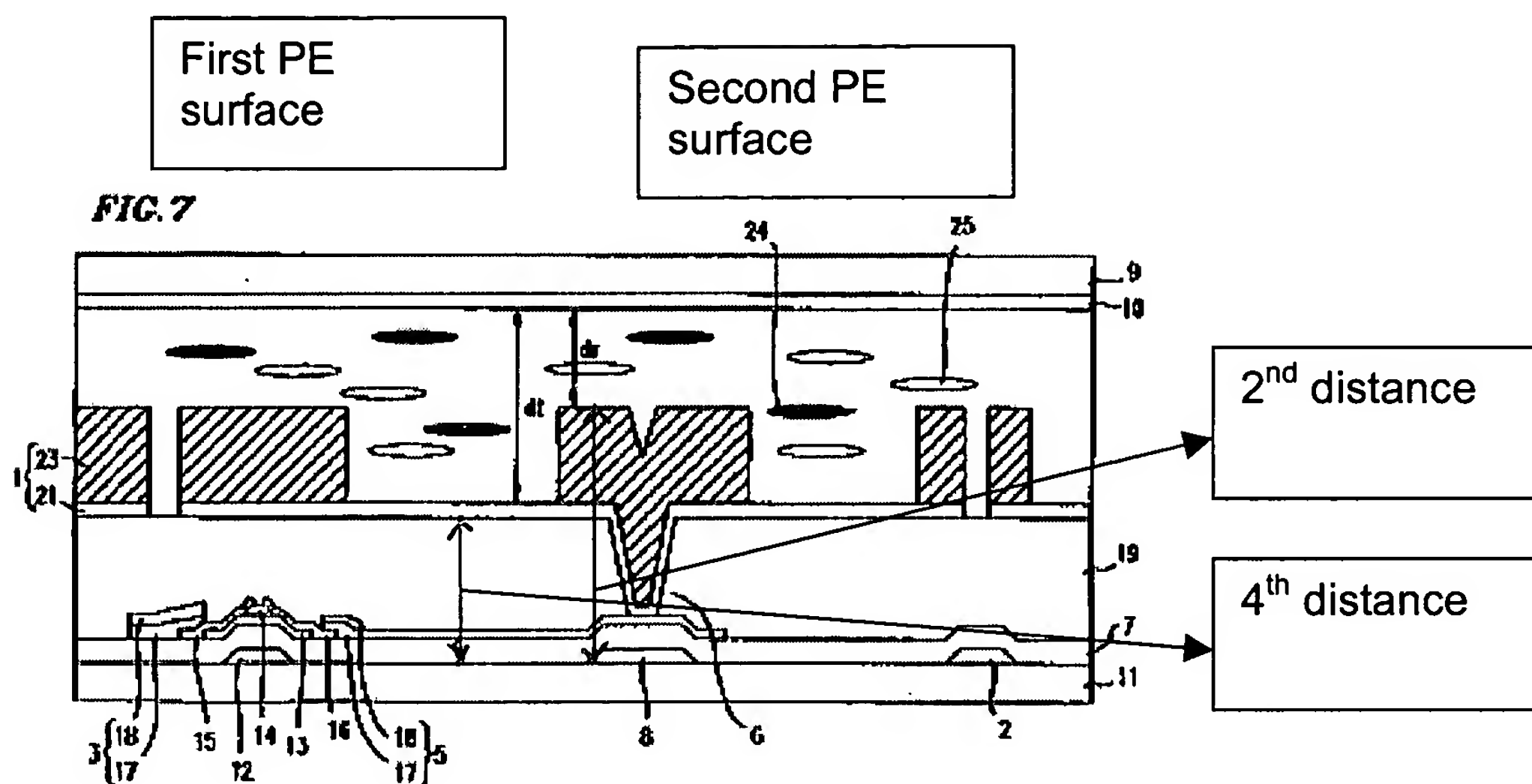
As to claims 8 and 17, Sato also discloses that both the first pixel electrode and the second pixel electrode are made of aluminum and thus is clear that both the surfaces are reflective.

**Claims 1-3, 13, 15 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Kubo et al., (Kubo), USPAT 6,195,140.**

7. Kubo discloses and shows in Fig. 7, a display system comprising:

- an electro-optic layer;
- a first electrode (10) operatively coupled to the electro-optic layer, the first electrode having substantially flat surface;
- a first substrate (11) having a plurality of pixel electrodes (1) for receiving a plurality of pixel data values which represent an image to be displayed, wherein for each of the pixel electrodes, a first pixel electrode surface has a first distance ( $d_1$ ) relative to the first electrode and a second distance ( $d_2$ ) relative to a surface of the first substrate (11) and a second pixel electrode surface has a third distance ( $d_3$ ) relative to the first electrode and fourth distance ( $d_4$ ) relative to the surface of the first substrate (11), and wherein the first distance ( $d_1$ ) does not equal to the third distance ( $d_3$ ) and the second distance ( $d_2$ ) does not equal the fourth distance ( $d_4$ ) and wherein the first pixel electrode surface and the second pixel electrode surface are substantially flat and substantially parallel to the first surface of the first electrode.





Accordingly, claims 1 and 13 are anticipated.

As to claims 2 and 15, Kubo discloses that the first electrode is a common counter electrode and the electro-optic layer comprises a liquid crystal material which is disposed between the first electrode and the first substrate.

As to claim 3, it is clear from Fig. 7 of Kubo that the first substrate (11) is planar and has a first surface on which the plurality of pixel electrodes (1) are disposed and the surface is opposite the first electrode (10).

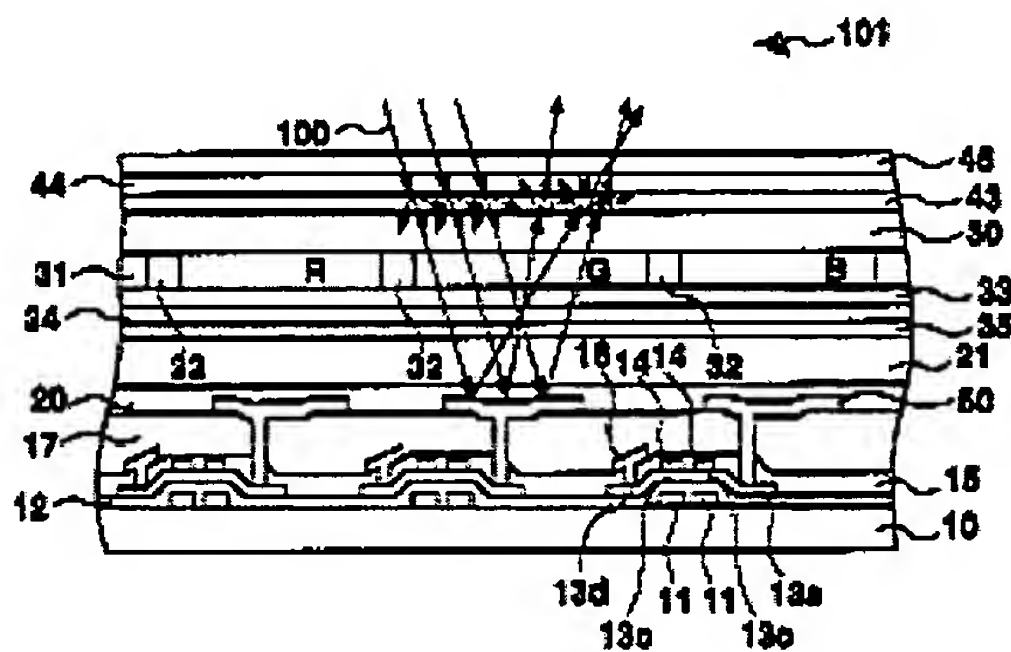
As to claims 7 and 16, it is also clear from Fig. 7 that a first surface area of the first pixel electrode surface and a second surface area of the second pixel electrode surface are substantially the same.

**8. Claims 1-3, 7, 8, 13 and 15-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Noritake, USPAT 6,563,559.**

9. Noritake discloses and shows in Figs. 3 and 4, a display system comprising:

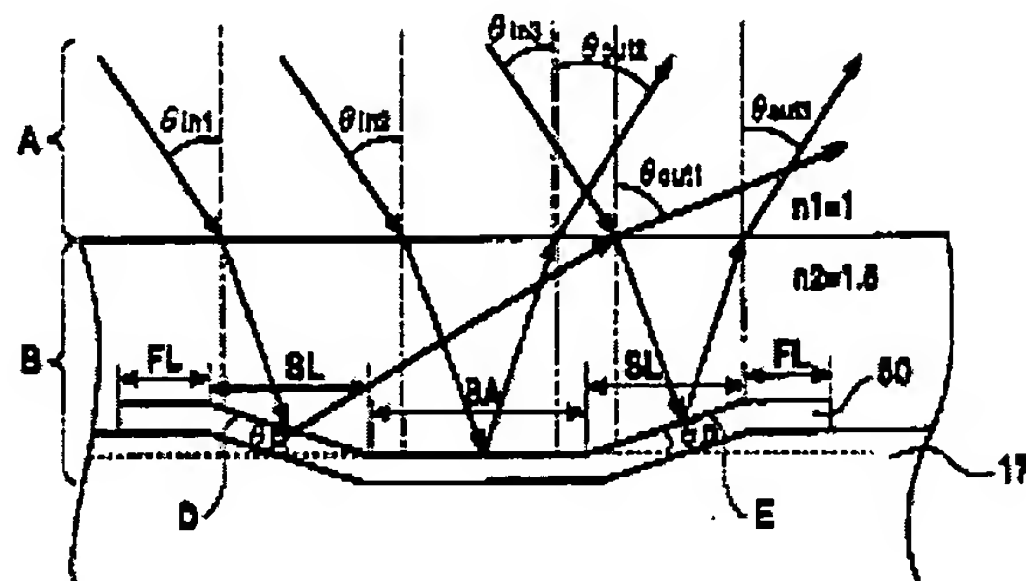


- an electro-optic layer (21);
- a first electrode (34) (common counter electrode) operatively coupled to the electro-optic layer, the first electrode having substantially flat surface;



**Fig. 3**

- a first substrate (10) having a plurality of pixel electrodes (50) for receiving a plurality of pixel data values which represent an image to be displayed, wherein for each of the pixel electrodes, a first pixel electrode surface has a first distance relative to the first electrode and a second distance relative to a surface of the first substrate and a second pixel electrode surface has a third distance relative to the first electrode and fourth distance relative to the surface of the first substrate, and wherein the first distance does not equal to the third distance and the second distance does not equal the fourth distance and wherein the first pixel electrode surface and the second pixel electrode surface are substantially flat and substantially parallel to the first surface of the first electrode.



**Fig. 4**

Accordingly, claims 1, 2, 13 and 15 are anticipated.

As to claim 3, it is clear from Fig. 3 of Noritake that the first substrate (10) is planar and has a first surface on which the plurality of pixel electrodes are disposed and the surface is opposite the first electrode (34).

As to claims 7 and 16, it is also clear from Fig. 4 that a first surface area of the first pixel electrode surface and a second surface area of the second pixel electrode surface are substantially the same.

As to claims 8 and 17, Noritake also discloses that the pixel electrode (50) is reflective (col. 4, line 55).

### ***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. **Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura.**

12. As to claims 4 and 5, even though Nakamura discloses a reflective display device, he does not explicitly disclose that the display system comprises a liquid crystal on silicon (LCOS) reflective display device. However, it is common and well known in the art that LCOS micro-displays are tiny, provide high resolution, low power and cost effective. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use a LCOS reflective display device in the display system of Nakamura for advantages such as high resolution, low power and low cost.

13. As to claim 6, illuminating a pixel electrode that has a first and a second pixel electrode surface with the same color of light is common and known in the art and thus would have been obvious to obtain a display device that is capable of providing clearer image.

**14. Claims 4-6, 14, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato.**

15. As to claims 4, 5 and 19, even though Sato discloses a reflective display device, he does not explicitly disclose that the display system comprises a liquid crystal on silicon (LCOS) reflective display device. However, it is common and well known in the art that LCOS micro-displays are tiny, provide high resolution, low power and cost effective. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use a LCOS reflective display device in the display system of Nakamura for advantages such as high resolution, low power and low cost.

As to claims 6 and 14, illuminating a pixel electrode that has a first and a second pixel electrode surface with the same color of light is common and known in the art and

Art Unit: 2871

thus would have been obvious to obtain a display device that is capable of providing clearer image.

As to claim 18, using the display system as a reflective micro display is considered as intended use and thus would have been obvious.

**16. Claims 4-6, 14, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo.**

17. As to claims 4, 5 and 19, even though Kubo discloses a reflective display device, he does not explicitly disclose that the display system comprises a liquid crystal on silicon (LCOS) reflective display device. However, it is common and well known in the art that LCOS micro-displays are tiny, provide high resolution, low power and cost effective. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use a LCOS reflective display device in the display system of Nakamura for advantages such as high resolution, low power and low cost.

As to claims 6 and 14, illuminating a pixel electrode that has a first and a second pixel electrode surface with the same color of light is common and known in the art and thus would have been obvious to obtain a display device that is capable of providing clearer image.

As to claim 18, Kubo shows in Fig. 7 that each of the plurality of pixel electrodes (1) comprises a reflector (23). As to using the display system as a reflective micro display is considered as intended use and thus would have been obvious.

**18. Claims 4-6, 14, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noritake.**

19. As to claims 4, 5 and 19, even though Noritake discloses a reflective display device, he does not explicitly disclose that the display system comprises a liquid crystal on silicon (LCOS) reflective display device. However, it is common and well known in the art that LCOS micro-displays are tiny, provide high resolution, low power and cost effective. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use a LCOS reflective display device in the display system of Nakamura for advantages such as high resolution, low power and low cost.

As to claims 6 and 14, illuminating a pixel electrode that has a first and a second pixel electrode surface with the same color of light is common and known in the art and thus would have been obvious to obtain a display device that is capable of providing clearer image.

As to claim 18, using the display system as a reflective micro display is considered as intended use and thus would have been obvious.

#### ***Allowable Subject Matter***

20. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***


21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R Chowdhury whose telephone number is (571) 272-2287. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TRC  
August 10, 2004



TARIFUR R. CHOWDHURY  
PRIMARY EXAMINER